

**Abstract of the Disclosur**

An ethane or other hydrocarbon feedstock is steam cracked to produce an ethylene stream which is processed in an ethylene plant recovery section to separate an ethane recycle and a polymer grade or chemical grade ethylene product stream. A portion of the ethylene product stream may then be reacted by dimerization to produce a butene stream. These formed butenes and/or butenes recovered from other sources and another portion of the ethylene product stream are reacted by metathesis to produce a propylene stream which is deethanized and separated from heavier hydrocarbons to produce the propylene product. The butene product stream may also be deethanized and is separated from heavier hydrocarbons. The overhead from the metathesis section deethanizer may be recycled to the ethylene plant recovery section. The reflux for the metathesis section deethanizer may be generated from the overhead or may be a portion of the ethylene product stream.

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